<u>IN THE CLAIMS</u>:

Please amend claims 1, 3, 5, 9, 13, 17, 19, and 25-27; and add claims 48 and 49 as follows:

1.   (Five times amended) An apparatus for converting an input voice signal into an output voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

separating means for separating the sinusoidal wave components into frequency value coordinates and amplitude value coordinates;

memory means for memorizing reference pitch information representative of a pitch of the reference voice signal, and reference amplitude information representative of amplitudes of the sinusoidal wave components contained in the reference voice signal;

first modulating means for modulating the frequency value coordinates of the sinusoidal wave components of the input voice signal according to the reference pitch information retrieved from the memory means, to generate modulated frequency value coordinates;

second modulating means for modulating the amplitude value coordinates of the sinusoidal wave components of the input voice signal according to the reference amplitude information retrieved from the memory means;

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combining means for combining the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of the input voice signal, and influenced by a reference pitch and a reference timbre, of the reference voice signal; and

mixing means for mixing the synthesized sinusoidal wave components having the modulated frequency value coordinates to synthesize the output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference voice signal,

3.   (Amended) An apparatus for converting an input voice signal into an output voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

memory means for memorizing reference pitch information representative of a pitch of the reference voice signal, wherein the memory means comprises memorization means for memorizing primary pitch information representative of a discrete pitch matching a music scale, and secondary pitch information representative of a fractional pitch fluctuating relative to the discrete pitch;

modulating means for modulating the frequency value coordinates of the sinusoidal wave components of the input voice signal according to the reference pitch information retrieved from the memory means, wherein the modulating means

comprises second modulating means for modulating a frequency of each of the sinusoidal wave components according to both of the primary pitch information and the secondary pitch information; and

mixing means for mixing the plurality of the sinusoidal wave components having the modulated frequency value coordinates to synthesize the output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference voice signal.

5. (Amended) The apparatus as claimed in claim 1, wherein the mixing means mixes the plurality of the sinusoidal eave components having the modulated amplitudes to synthesize the output voice signal having a timbre different from that of the input voice signal and influenced by that of the reference voice signal.

9. (Five times amended) An apparatus for converting an input voice signal into an output voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

memory means for memorizing, as memorized amplitude value coordinates, reference amplitude information representative of amplitudes of the sinusoidal wave components contained in the reference voice signal;

modulating means for modulating the amplitude value coordinates of the sinusoidal wave components of the input voice signal extracted from the input voice

signal according to the reference amplitude information retrieved from the memory means; and

mixing means for mixing the plurality of the sinusoidal wave components having the modulated amplitude value coordinates to synthesize the output voice signal having a timbre different from that of the input voice signal and influenced by that of the reference voice signal,

wherein the modulating means comprises

normalizing means for normalizing the amplitude value coordinates of the sinusoidal wave components of the input voice signal by a mean amplitude of the input voice signal, to generate normalized amplitude value coordinates,

a second mixing means for mixing the normalized amplitude value coordinates of the input voice signal and the memorized amplitude value coordinates of the reference voice signal with one another by a predetermined ratio to produce mixed amplitude value coordinates, and

multiplying means for multiplying the normalized amplitude value coordinates of the sinusoidal wave components of the input voice signal with the mean amplitude of the input voice signal.

13. (Amended) An apparatus for converting an input voice signal into an output voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

5

memory means for memorizing reference amplitude information representative of amplitudes of the sinusoidal wave components contained in the reference voice signal, wherein the memory means comprises memorization means for memorizing primary pitch information representative of a discrete pitch matching a music scale, and secondary pitch information representative of a fractional pitch fluctuating relative to the discrete pitch;

modulating means for modulating the amplitude value coordinates of the sinusoidal wave components of the input voice signal extracted from the input voice signal according to the reference amplitude information retrieved from the memory means, wherein the modulating means comprises second modulating means for modulating a frequency of each sinusoidal wave component according to both of the primary pitch information and the secondary pitch information; and

mixing means for mixing the plurality of the sinusoidal wave components having the modulated amplitude value coordinates to synthesize the output voice signal having a timbre different from that of the input voice signal and influenced by that of the reference voice signal,

wherein the memory means further memorizes pitch information representative of a pitch of the reference voice signal, and the modulating means further modulates the frequency of each sinusoidal wave component of the input voice signal according to the pitch information, so that the mixing means mixes the plurality of the sinusoidal wave components having the modulated frequencies to synthesize the output voice signal having a pitch different from an input voice signal pitch of the input voice signal and influenced by a reference voice signal pitch of the reference voice signal.

17.   (Five times amended) An apparatus for synthesizing an output voice signal from an input voice signal and a reference voice signal, the apparatus comprising:

.an analyzer device that analyzes only deterministic components contained in the input voice signal to derive a parameter set of an original frequency and an original amplitude, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

a separating device to separate the sinusoidal wave components into frequency value coordinates and amplitude value coordinates;

a source device that provides reference information characteristic of the reference voice signal;

a modulator device that modulates the parameter set of the sinusoidal wave components according to the reference information, to generate modulated amplitude value coordinates;

a regenerator device that operates according to each of the parameter sets as modulated to regenerate each of the sinusoidal wave components so that at least one of the frequency and the amplitude of each sinusoidal wave component as regenerated varies from the original one, and that mixes the regenerated sinusoidal wave components together to synthesize the output voice signal;

a second modulator device to modulate the amplitude value coordinates of the sinusoidal wave components of the input voice signal according to reference amplitude information, representative of amplitudes of the sinusoidal wave components contained

in the reference voice signal, to generate modulated amplitude value coordinates;

a combining device to combine the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of the input voice signal, and influenced by a reference pitch and a reference timbre, of the reference voice signal.

19.   (Amended) An apparatus for synthesizing an output voice signal from an input voice signal and a reference voice signal, the apparatus comprising:

an analyzer device that analyzes only deterministic components contained in the input voice signal to derive a parameter set of an original frequency and an original amplitude, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

a source device that provides reference information characteristic of the reference voice signal, the reference information being characteristic of a reference pitch of the reference voice signal;

a modulator device that modulates the parameter set of each sinusoidal wave component according to the reference information; and

a regenerator device that operates according to each of the parameter sets as modulated to regenerate each of sinusoidal wave component so that at least one of the frequency and the amplitude of each sinusoidal wave component as regenerated varies from the original one, and that mixes the regenerated sinusoidal wave components together to synthesize the output voice signal,

wherein the modulator device modulates the parameter set of each sinusoidal wave component according to the reference information so that the frequency of each sinusoidal wave component as regenerated varies from the original frequency, thereby an output pitch of the output voice signal being synthesized according to the reference pitch of the reference voice signal,

and the source device provides the reference information characteristic of both of a discrete pitch matching a music scale and a fractional pitch fluctuating relative to the discrete pitch, thereby the output pitch of the output voice signal being synthesized according to both of the discrete pitch and the fractional pitch of the reference voice signal.

25. (Five times amended) A method of converting an input voice signal into an output voice signal according to a reference voice signal, the method comprising the steps of:

extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

separating the sinusoidal wave components into frequency value coordinates and amplitude value coordinates;

memorizing referencing pitch information representative of a pitch of the reference voice signal and reference amplitude information representative of amplitudes of the sinusoidal wave components contained in the reference voice signal;

modulating the frequency value coordinates of the sinusoidal wave components of the input voice signal according to the reference pitch information, to generate

modulated amplitude value coordinates;

mixing the plurality of the sinusoidal wave components having the modulated frequency value coordinates to synthesize the output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference voice signal;

modulating the amplitude value coordinates of the sinusoidal wave components of the input voice signal according to the reference amplitude information retrieved from the memory means; and

combining the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of the input voice signal, and influenced by a reference pitch and a reference timbre, of the reference voice signal.

26.   (Five times amended) A method of converting an input voice signal into an output voice signal according to a reference voice signal, the method comprising the steps of:

extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

memorizing, as memorized amplitude value coordinates, reference amplitude information representative of amplitudes of the sinusoidal wave components contained in the reference voice signal;

modulating the amplitude value coordinates of the sinusoidal wave components

of the input voice signal extracted from the input voice signal according to the reference amplitude information retrieved from the memory means; and

mixing the plurality of the sinusoidal wave components having the modulated amplitude value coordinates to synthesize the output vice signal having a timbre different from that of the input voice signal and influenced by that of the reference voice signal;

normalizing the amplitude value coordinates of the sinusoidal wave components of the input voice signal by a mean amplitude of the input voice signal, to generate normalized amplitude value coordinates;

mixing the normalized amplitude value coordinates of the input voice signal and the memorized amplitude value coordinates of the reference voice signal with one another by a predetermined ratio to produce mixed amplitude value coordinates; and

multiplying the normalized amplitude value coordinates of the sinusoidal wave components of the input voice signal with the mean amplitude of the input voice signal.

27.   (Five times amended) A machine readable medium used in a computer machine having a CPU for synthesizing an output voice signal from an input voice signal, the medium contain program instructions executed by the CPU for causing the computer machine to perform the method comprising the steps of:

analyzing only deterministic components contained in the input voice signal to derive a parameter set of an original frequency and an original amplitude, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and residual components;

providing reference information characteristic of the reference voice signal;

modulating the parameter set of the sinusoidal wave components according to the reference information, to generate modulated amplitude value coordinates;

regenerating each of the sinusoidal wave components according to each of the modulated parameter sets so that at least one of the frequency and the amplitude of each regenerated sinusoidal wave components varies from the original one, and

mixing the regenerated sinusoidal wave components together to synthesize the output voice signal;

separating the sinusoidal wave components into frequency value coordinates and amplitude value coordinates;

modulating the amplitude value coordinates of the sinusoidal wave components of the input voice signal according to the reference amplitude information, representative of amplitudes of the sinusoidal wave components contained in the reference voice signal, to generate amplitude value coordinates; and

combining the modulated frequency value coordinates and the modulated amplitude value coordinates to synthesize sinusoidal wave components of the output voice signal having an output pitch and an output timbre different from an input pitch and an input timbre, of the input voice signal, and influenced by a reference pitch and a reference timbre, of the reference voice signal.

48.   (New) An apparatus for converting an input voice signal into an output voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave components, wherein the input voice signal includes the deterministic components and

residual components;

memory means for memorizing reference pitch information representative of a pitch of the reference voice signal;

modulating means for modulating frequency value coordinates of the sinusoidal wave components of the input voice signal according to the reference pitch information retrieved from the memory means; and

mixing means for mixing the plurality of the sinusoidal wave components having the modulated frequency value coordinates to synthesize the output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference voice signal,

wherein the modulating means comprises

a second mixing means for mixing a reference pitch of the reference voice signal and an input pitch of the input voice signal with each other by a predetermined ratio to output a mixed pitch value,

normalizing means for normalizing the frequency value coordinates of the sinusoidal wave components by the input pitch of the input voice signal, and

multiplying means for multiplying the normalized frequency value coordinates of the sinusoidal wave components of the sinusoidal wave components by the mixed pitch value.

49.   (New) An apparatus for converting an input voice signal according to a reference voice signal, the apparatus comprising:

extracting means for extracting only deterministic components from the input voice signal, the deterministic components including a plurality of sinusoidal wave

components, wherein the input voice signal includes the deterministic components and residual components;

memory means for memorizing reference pitch information representative of a pitch of the reference voice signal;

modulating means for modulating frequency value coordinates of the sinusoidal wave components of the input voice signal according to the reference pitch information retrieved from the memory means;

mixing means for mixing the plurality of the sinusoidal wave components having the modulated frequency value coordinates to synthesize the output voice signal having a pitch different from that of the input voice signal and influenced by that of the reference voice signal;

separating means for separating the residual component from the input voice signal after extraction of the sinusoidal wave components; and

adding means for adding the residual component to the output voice signal.

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